



Case Study

Aisling Discoveries
Child and Family Centre

Aisling Discoveries Child and Family Centre is a not-for-profit agency accredited by Children's Mental Health Ontario to provide responsive services in partnership with families and communities. The agency's mandate is to promote the healthy development and emotional well-being of children from birth to twelve years of age who have social, emotional or behavioural problems. Aisling Discoveries' new TPAS (Toronto Partnership for Autism Services) facility located in Scarborough, ON, allows the agency to locate all of its previously scattered Autism Treatment Programs under one roof, providing adequate space for therapy, gross motor activities and parent consultations.

Project Planning

Early in the project planning phase, the project team agreed that a core goal of the project would be to create the most energy efficient, environmentally sustainable space possible for the children and families participating in Aisling Discoveries' programs while ensuring that capital costs were well within the approved budget. It was decided that certification under the LEED (Leadership in Energy and Environmental Design) Canada Green Building Rating System for Commercial Interiors would be targeted as a reward for a well-designed and responsibly constructed space.

The project had a tight budget working within the constraints of a small tenant improvement allowance and a loan from Aisling Discoveries' charitable foundation. Located in a district that met the agency's mandate for services and with a rental rate that complied with funding criteria for operating costs, the existing building presented a combination of opportunities and challenges with respect to the environmental goals of the client and the project team. The project team welcomed the challenges and was inspired to pursue a healthy space for the children and families that Aisling Discoveries supports.

Design

The project design includes features that reduce energy requirements, improves the quality of the indoor environment and incorporates sustainable planning strategies, while meeting the specific and unique requirements of Aisling Discoveries' programs and clients.

The design was informed by the expertise of the project team in creating healthy learning spaces for children with autism. Because individuals with autism are typically much more sensitive to sensory stimulation and are easily distracted from learning activities, Aisling Discoveries' space differs noticeably from a typical mainstream school design. Unlike school facilities that typically deliver programs to 20 or more children in a group setting, therapeutic programming for children with autism relies heavily on one-on-one and small group interaction, which is reflected in the facility layout.



Design decisions such as plumbing and light fixture choices reflect a balance between the clients' learning needs, environmental goals, cost, and maintenance considerations.

Construction

The construction phase of a project can have an impact on sustainability goals such as preserving indoor air quality and diverting demolition and construction waste from landfill. Prior to the commencement of construction, the project management team conducted an information session for all trades to ensure that the general contractor and all the sub-trades understood the project goals and LEED certification requirements prior to commencing work.

During construction, large information panels were displayed throughout the project site conveying point form information as a quick reference source. Question-and-answer periods were held during the site meetings to deal with any sustainability and LEED-related issues on an ongoing basis.

The general contractor developed and implemented an indoor air quality management plan and construction waste management plan that were followed throughout the construction of the project. Scheduling was another important consideration in the project both for aspects of sustainability such as preserving indoor air quality and very importantly, for Aisling Discoveries' budget, which would not allow for additional rental costs incurred due a delayed move-in date. The construction team was successful in completing the project on time and under budget while preserving the sustainable goals of the project.

Site

Aisling Discoveries' new TPAS facility is approximately 15,000 square feet leased in a single storey 1970's industrial building. Situated in east Toronto, the site is conveniently adjacent to two frequent service bus lines, which was important consideration in relocating to this site as many of the agency's clients rely on public transportation to reach the facility. Staff, guests and clients alike are encouraged to use public transportation which reduces car trips and the associated environmental effects.

Energy Efficiency

Energy efficiency was an important goal for Aisling Discoveries' new facilities. As well being environmentally sustainable, lower operating costs can have a positive effect on the program budget. An extensive commissioning program was developed to ensure all electrical, HVAC and plumbing systems were designed, installed and tested to meet the owner's efficiency requirements.



To reduce energy consumption from lighting use, T8 light fixtures were salvaged from another site to replace the existing less efficient T12 light fixtures. All treatment rooms and learning spaces were fitted with the replacement fixtures which provide indirect light. In corridors and common spaces the existing fixtures were retrofitted with reflectors and 4-lamp T12 ballasts were replaced with 2-lamp T8 ballasts. This has the effect of higher light levels with less energy consumption. Replacing older fixtures and ballasts with the higher quality, energy efficient T8 technology reduces the lighting power requirements of the space by almost 50% over the previously existing conditions.

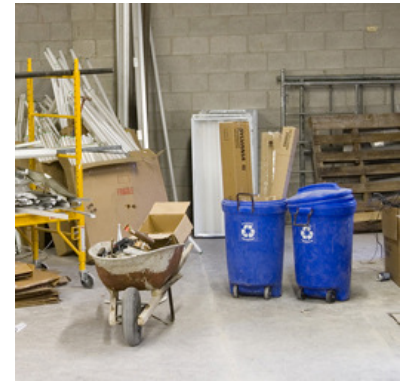
To further improve lighting efficiency, occupancy sensors which detect motion were installed in all rooms to ensure energy was not being wasted in unoccupied rooms. Daylight sensors were also installed in all perimeter rooms with natural light. These sensors can override occupancy sensors and automatically switch off lights in areas where sufficient lighting levels are being achieved by sunlight alone. In common areas, lights are controlled by a digital time switch to ensure all non-essential lights are turned off during unoccupied hours.

The space is served by nine rooftop HVAC units. Within the scope of the project, four aging units which were at the end of their service life were replaced with new CFC-free energy efficient units, and all units were fitted with digital programmable thermostats to ensure the comfort of individuals or groups is balanced with energy conservation. As part of the commissioning process, each unit was programmed and tested based on occupancy within the facility.

Water Efficiency

The existing plumbing fixtures were in poor condition and needed to be replaced, in addition to higher occupancy levels requiring an increased number of fixtures. This requirement afforded an opportunity to explore low-flush and low-flow fixtures which are currently available at a comparable price to less efficient conventional models, eliminating cost concerns associated with upgrading from less efficient fixtures. The low-flush high efficiency toilets installed use 4.8 litres of water per flush; low-flow faucets use 1.9 litres of water per minute, which in combination reduce water consumption by over 45%.

Plumbing fixture choice was carefully weighed in terms of efficiency versus the learning needs of the clients. Although water savings could have been maximized by using technology such as dual-flush toilets, waterless urinals and automatic sensor faucets, the decision was made to use fixtures that closely resemble those clients would typically encounter in a typical residential or school setting. This decision balances the educational program requirements with the project's sustainable goals.



Responsible Material Use

Aisling Discoveries placed a high value on responsible use of materials. The space was designed to utilize the existing layout and existing construction to the greatest extent possible, which minimized demolition waste as well as reduced the amount of new materials required for construction. Over 45% of the existing partitions, doors, ceilings and millwork were re-used. The project's construction waste management plan incorporated both on-site separation and off-site sorting. The collection bins were carefully monitored during the construction phase, with the result that over 80% of the project's construction waste was diverted from landfill.

All material choices were carefully considered with environmental attributes in mind. Reuse was an important strategy for the project. Carpet tiles with high recycled content were salvaged from another project site, cleaned and re-installed in office areas. Doors and frames, suspended ceiling grid and light fixtures were also salvaged from other sites, re-furbished and re-installed throughout the suite.

Aisling Discoveries also reused a large amount of furniture from their previous location, accounting for over 95% of the furniture in the new facility. This was both a cost-saving measure and a measure aimed at reducing waste and the environmental impact of new consumer products. Where new materials were incorporated, consideration was given to all specifications to ensure the products met with the environmental goals of the project. Main corridors and all treatment room floors are finished in linoleum to provide a balance between durability and high recycled and rapidly renewable material content.

Additional materials used that have recycled and regional manufactured content include drywall, steel studs, and replacement ceiling tiles. In total, the materials used contained over 25% recycled content and over 80% were manufactured in the local region. In addition, over 75% of the wood used on the project was certified by the Forest Stewardship Council as being from well-managed forests.

Indoor Air Quality

Aisling Discoveries made it a priority to ensure the highest air quality for clients inside their new facility. Because products including paints, sealants and adhesives often contain chemicals that have negative health effects, care was taken to specify and install only products with zero or minimal volatile organic compounds (VOC) levels. In addition, all fibreboard used was formaldehyde-free, all new furniture was GreenGuard-certified, and all carpeting was Green Label Plus-certified.

During construction the HVAC components were protected from contamination. Openings in ductwork were covered with plastic and sealed with tape. Uninstalled components being stored on site were also wrapped in plastic. The building was ventilated using the doors, windows and exhaust fans whenever



possible. HVAC systems were used only when required to maintain temperatures to ensure the curing of finish materials. Before being used, high efficiency filters were installed to reduce the particulate matter collecting in ductwork. Filters were replaced after construction activities were complete and prior to Aisling Discoveries' move-in.

The construction process was carefully sequenced and monitored to avoid exposing absorptive finish materials such as carpets and furniture to contaminants such as VOCs and dust. Prior to move-in, a comprehensive Indoor Air Quality testing program was completed to ensure minimal levels of harmful chemicals and airborne contaminants were present.

Aisling Discoveries has also implemented a Green Housekeeping program as part of their operations phase. As well as reducing environmental impact, measures including use of only EcoLogo certified cleaning products, vacuuming with HEPA filtered equipment, and training of cleaning staff will ensure the indoor air quality will not be compromised by routine maintenance activities.

Community Education

Since opening Aisling Discoveries continues to share the benefits and accomplishments of the facility through structured tours for the parents of the children, education officials, and guests. A guided tour program highlights their programs and is intended to educate tour participants not only about the sustainable strategies employed in the space but also to explain the impact of these strategies on the occupants of the space and the environment as a whole.

In addition, Aisling Discoveries is working with the local art community to develop a creative installation in the entry area of the facility with the theme of "children and the environment." The intention of this project is to challenge the local art community to create an educational installation that highlights children, autism and the environmental benefits of Aisling Discoveries' facilities on both.

